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ABSTRACT

Demand for admission to teacher education programs is tending to outstrip the availability of places. Admissions decisions are currently made on the basis of criteria which have little support in the evidence on the prediction of success in professional practice. This study addresses two aspects of career success: survival and promotion. A sample of 100 individuals who graduated in 1971 from a consecutive education program was the subject of follow-up studies in 1974 and in 1984. In 1974, the pre-admission interview was found to be the best predictor of survival in the profession. The 1984 study discovered no robust predictors of career success. Implications are drawn for admissions policies in teacher education. Data tables and a six-page reference list are appended. (Author/AA)

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PREDICTING CAREER SUCCESS IN TEACHING

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Abstract

Demand for admission to teacher education programs is tending to outstrip the availability of places. Admissions decisions are currently made on the basis of criteria which have little support in the evidence on the prediction of success in professional practice. This study addresses two aspects of career success: survival and promotion. A sample of 100 individuals who graduated in 1971 from a consecutive teacher education program was the subject of follow-up studies in 1974 and in 1984. In 1974, the pre-admission interview was found to be the best predictor of survival in the profession. The 1984 study discovered no robust predictors of career success. Implications are drawn for admissions policies in teacher education.

Predicting Career Success in Teaching

The Need for Prediction

Selection into training has been an issue in professional education for half a century. Everyone recognizes the desirability of selecting the "best" future teachers, lawyers, and physicians for admission to professional school. Few professional educators and even fewer researchers are confident that they know how to do this.

Competition to enter the professions may well increase over the next two decades. Many other fields are likely to suffer retrenchment as a result of technical and economic change. But the demand for teachers, more than for most professionals, is determined almost entirely by demographic factors. In the United States there is currently strong general demand in a number of states, and nationally for teachers of mathematics, science, and computing (Chronicle of Higher Education, 1984). The retirement in the 1990s of many teachers who entered the profession in the 1960s will increase the demand. But, even in a depressed market, there is no shortage of applicants for teacher education programs. Application for admission to faculties of education in Ontario rose 14 per cent between 1980 and 1982 (Allison, 1983).

Whenever the demand for places in training exceeds availability, some kind of selection becomes necessary. When exclusion becomes a possibility, valid selection involves questions of justice. The notoriously low failure and washout rate in schools of education means that little selection takes place in training, while the hiring process appears to be almost random with respect to teacher quality. It would prevent both economic waste and emotional cost if teachers who would be unhappy (or make their pupils unhappy) or would drop out of teaching, were excluded prior to training.

And the point of admission to training is probably the least problematic stage at which to dissuade people from an inappropriate career choice.

Trends in Admissions to Teacher Education

In recent years, admissions to teacher education have been the focus of both public and legal attention, particularly in the United States. The revelation that none of New Mexico's 136 bilingual teachers could pass a Grade 4 Spanish examination was typical of events prompting calls for stricter criteria (Shields and Danielle, 1982). The general effect has been to raise admissions requirements in terms of GPA or scores on the National Teacher Examination. This has in turn led to legal challenges, but the resulting rulings have failed to give clear guidance. In *Washington v. Davis* in 1976, the Supreme Court ruled that "presumptive evidence of job-relatedness is acceptable" and that it was permissible to select "persons who have achieved the basic education considered necessary to function as a teacher" (Shields and Danielle, 1982, p. 7).

Increased standards may have occurred in rhetoric rather than in fact. A national survey of 147 representative teacher training institutions in the U.S. showed that exclusion of applicants was still infrequent in 1982, and "as a general rule, teacher training institutions reportedly are doing little to recruit desirable candidates for entry into teacher education" (Laman & Reeves, 1983, p. 3). Haberman's (1972) observation was probably still valid a decade later:

In 1971, we admitted 929 students and denied 67 others. Twenty per cent of those denied were subsequently admitted for showing "perseverance and commitment." The evidence of perseverance and commitment was that they chose to reapply while the others were naive enough to believe us when we turned them down the first time. (p. 19)

Prediction of Performance in Teaching

There are no perfect predictors of professional performance. Most researchers have concluded that there are not even adequate predictors. Ghiselli (1973) reviewed available studies and concluded that intelligence, achievement, aptitude, and personality tests did not yield validity coefficients above .35 for on-the-job proficiency. The use of "signs" rather than "samples" of behavior (Murphy, 1981) is open to criticism on grounds both of validity and of justice. However, prediction from job-related behavior has not been particularly successful in teacher education. Practice teaching scores have high face validity, and are widely believed by teachers and students to be a good predictor of professional performance. But the empirical evidence on this issue is inconsistent. Browning (1968) found a correlation of $-.03$ between practice teaching ratings by education professors and ratings of the same teachers in their first year of teaching by supervisors; the agreement between in-school supervisors in practice teaching and in the first year of teaching was $.23$. Jenkins (1978), on the other hand, found a correlation between practice teaching grade and first-year Principal's rating significant at $.01$. The inconsistent predictive value of practice teaching scores calls into question much of the research on prediction of teaching ability which uses practice teaching scores as the independent variable.

Many variables have been examined in the search for predictors of teaching success. Several researchers have explored the value of personality measures, notably Cattell's Sixteen Personality Factor Questionnaire (Cortis, 1975; Mundel-Atherstone, 1980; Oldroyd, Pappas, & Hart, 1973; Peery, 1979). Peery found that the three traits, tender-minded, conscientious, and self-sufficient had a correlation of $.73$ with mean residual pupil achievement in Algebra 1. However, findings in other studies are inconsistent and rarely significant.

The same is true of studies using the Minnesota Teacher Attitude Inventory (Bedford, 1971; Evans, 1965-6; Herbert & Turnbull, 1963-4; Popham & Trimble, 1960). Reviewing predictors of university performance, Breland (1981) found that personality measures yielded a median correlation of .28 with academic outcomes and .13 with nonacademic outcomes. Interest measures correlated .12 with academic outcomes and .26 with nonacademic outcomes.

The most widely used criterion for admission to teacher education is academic grades. Many studies have examined the relationship between academic grades of teachers and success in teaching (Barnes, 1977; Bedford, 1971; Bode, 1972; Crocker, 1974; Dawson, 1972; Fratiani, 1979; Jenkins, 1978; Sandven, 1969; Wahlstrom & Danley, 1979). Although correlations are usually positive, they are usually non-significant. The same applies to scores on the National Teacher Examination (Brown, 1974; Jenkins, 1978; Quirk, Witten, & Weinberg, 1973; Summers & Wolfe, 1975). Intellectual aptitude, however, as distinct from academic grades, does appear to have an impact on pupil achievement (Hanushek, 1970). Coleman (1966) found an effect of teacher verbal skills and education level which was earlier and more pronounced on black students than on white. Levin (1970) estimated that "for each additional point of teacher verbal score, the Negro students showed an increment of .175 points and the white students an increment of .179 points in student verbal score" (p. 29).

Probably the most controversial selection procedure is the preadmission interview. The one consistent finding is that the interview "gives a great deal of satisfaction to the persons who use it" (Breland, 1981, p. 23). In reviewing use of the interview for university admissions, Breland found a median inter-rater agreement of .54, and high correlations of interview scores with intelligence (.87), submissiveness (.85), and sociability (.84). But he found that it predicted academic outcomes at only .15 and nonacademic outcomes at .10.

Ninety per cent of American medical schools use the interview as a selection procedure, and rank it second in importance to grade-point average as a selection factor (Puryear & Lewis, 1981). At an average institutional cost of \$110 per applicant (Milstein, Wilkinson, Burrow, & Kessen, 1981), the interview has been of considerable interest to medical educators. (Medical schools have generally been at the forefront of research into prediction of academic and professional success, with teacher educators far behind.) Their research shows that the predictive value of the preadmission interview is disappointing (Gough & Hall, 1975; Kandler, Plutchik, Conte, & Siegel, 1975; Keck, Arnold, Willoughby, & Calkins, 1979; Meredith, Dunlop, & Baker, 1982). Levitt (1978) summarized "That Bouillabaisse: Medical School Admissions" with the comment:

All of us, whether we're scientists, humanists, or just ordinary folk, believe that eyeball confrontation yields much that is valuable. The interview, unfortunately, correlates with very little, save the prejudices of the person conducting it. All studies, within and without medical schools, which seek to link subsequent performance with interview rating yield a harvest of locusts. (p. 247)

One of the problems of the interview is its susceptibility to bias. Attitude congruency between interviewer and subject is a major predictor of interview score (Byrne, 1971; Frank & Hackman, 1975; Merritt, 1970). However, the interview has predicted success in practice teaching more consistently than any other measure (Bedford, 1971; Burroughs, 1958; Crocker, 1974; Harvey, 1964). Based on a study with 2097 Canadian teacher education students, Wahlstrom and Danley (1979) concluded that

Although the selection interview suffers from problems of reliability and bias and is a very expensive procedure . . . in the area of educational selection and more specifically the selection of teacher candidates, the procedure is among the best, if not the best predictor of successful student teaching . . . especially when it is structured, systematic, and well-designed and used by the proper personnel. (p. 48)

Despite such favorable reviews, the interview is not widely used for selection in teacher education. An informal survey of Canadian faculties of education disclosed only one faculty which interviewed candidates for the preservice program as a matter of course. It could be argued that the qualities required to rate well in an interview--communication skill, sociability, poise--are also the qualities required for successful classroom teaching. Pratt (1977) found a correlation between preadmission interview score and practice teaching grade of only .175. However, he also found that teacher education graduates who had left teaching within four years of graduation had preadmission interview scores significantly (at .001) lower than those who had remained in teaching. Thayer (1978) reports a project which systematically identified interview questions whose answers predicted subsequent favorable pupil evaluation of the teacher. On this basis, Project EMPATHY has developed an interview instrument which predicts pupil evaluations with 85 per cent consistency, and is 91 per cent consistent with administrator evaluations.

Biographical data are beginning to be examined as predictors of academic and professional success. "Biodata" factors typically include such items as high school experience as club or class officer; work experience; rural-urban background. According to Anastasi (1976), "biographical inventories have

proved to be consistently good predictors of performance in a wide variety of contexts" (p. 615). While the collection of biodata usually involves self-reporting, reliability of interpretation is typically above .80, the information is generally verifiable, and the validity has been shown to be high: self-reported grades, for example, correlate with actual grades at .96 (Baird, 1976). Biodata is in one sense an inexpensive alternative to the interview, because the interview has been found to be more useful when more structured; the more structured it becomes, the more the data it yields resemble those obtainable from the biographical inventory. Breland (1981) found a median predictive correlation for biodata of .43 with academic outcomes and .35 with nonacademic outcomes--the highest correlations among the predictors he examined. But, while biodata make for relatively good prediction, they are less satisfactory for selection. Wahlstrom and Danley (1979) found that work experience correlated at .80 with practice teaching grades in one teachers' college, but at only .09 at another college. Furthermore, caution needs to be exercised in discriminating against individuals who may have had limited opportunity to build an impressive biographical inventory.

Two other procedures may be mentioned briefly. References and recommendations are widely collected in admissions procedures. Available evidence suggests they have questionable reliability and little or no predictive validity (Breland, 1981).

An interesting large-scale study in British Columbia is currently being directed by Mamchur. Its origin lies in research on teacher effectiveness indicating that five factors--empathy, people orientation, and perceiving others as capable, friendly, and worthy--differentiate between effective and ineffective teachers. A "Human Relations Instrument" (HRI) has been developed which asks subjects to describe a significant helping experience, and to say

how they felt at the time and how they feel now. These instruments are scored in terms of perceptions of self, others, purpose, and frame of reference. Inter-rater reliability is above .80. Commencing with 1250 volunteers, the study will follow 60 outliers on the HRI through their first and second years of teaching, collecting evaluations by pupils, principals, and superintendents, and conducting systematic classroom observation (Mamchur, 1983).

The research described to this point has generally attempted to relate predictors to measures of teaching success. Another research theme looks for predictors of survival in teaching. First, there is a hypothetical connection between survival and success: it is assumed that successful teachers are more likely to be retained and unsuccessful teachers to drop out. Second, wastage from teaching implies direct and opportunity costs in training (although a rapid turnover of beginning teachers may represent salary savings to school boards). Attrition from teaching has slowed down considerably in recent years, but in the U.S. at least 35 per cent of education graduates who begin teaching appear to drop out within three years (Mark & Anderson, 1978; Schlechty & Vance, 1982). The drop-out rate is somewhat lower in Canada (Pratt, 1977).

Few biographical factors have been found to be consistently related to survival in teaching. Females are more likely to enter teaching (Lyson & Falk, 1984; Roberson & Keith, 1983), and also more likely to drop out (Anderson & Mark, 1977), especially if married (Pavalko, 1970). The difference between male and female dropout, however, is closing rapidly (Mark & Anderson, 1978). Most of this research has focused on academic ability and survival. Here the results are inconsistent. There is some indication that people who stay in teaching have better organizational

skills, particularly in organization of time, whereas those who leave have superior analytic skills (Chapman & Hutcheson, 1982). Schlechty & Vance (1982) found a linear relationship between dropout and SAT score: students with higher verbal or math SAT scores were less likely to enter teaching and more likely to drop out after entry. Denton (1983) found teachers with higher SAT scores more likely to survive. Lyson and Falk (1984) provide a possible explanation for this discrepancy: would-be teachers who move up occupationally have higher SAT scores; those who move down have lower scores. Denton (1983) also found that teachers with higher GPAs were more likely to remain in teaching, as did Villeme and Hall (1983). However, Villeme and Hall (1980), Perry (1981), and Pratt (1977) found no relation between undergraduate grades and survival in teaching.

A final cautionary note is in order. The status of teaching varies considerably from one jurisdiction to another. The average teacher salary in the U.S. after 12 years of teaching was \$US 17,000 in 1983 (National Commission on Excellence in Education, 1983). In Ontario, the average teacher in 1981-82 had 13.5 years of experience and earned a median salary of \$CAN 32,860 (Ontario Ministry of Education, 1982). With such disparity, it is quite possible that more able individuals would leave teaching in the U.S. but remain in teaching in Canada. Consequently, generalizations from U.S. research can be made only with caution.

Method

This study sought predictors of career success in teaching.

One hundred subjects (43 male and 57 female) were randomly selected from among the 333 who graduated from a one-year post-graduate teacher training program at Queen's University in 1970-71. Questionnaires were sent out in November 1974, 3½ years after graduation, and in January 1984, 13½ years

after graduation.

Six pretraining variables were identified:

- 1) sex;
- 2) marital status on admission to training;
- 3) year of birth;
- 4) undergraduate average;
- 5) 3-year or 4-year degree;
- 6) preadmission interview score (on a scale of 0-6);

and two in-training variables:

- 1) average grade in curriculum subjects;
- 2) practice teaching grade (on a scale of 0-6).

An informal preadmission interview by three interviewers was used in 1971 for selection into the Bachelor of Education program at Queen's University. The interview was abandoned in the early seventies.

In 1974, subjects who had left teaching were asked to indicate the reasons for their withdrawal and whether they regarded it as permanent. In 1984, subjects were asked whether they were currently teaching, how many years they had taught, and what their current position was.

Table 1 shows the characteristics of the respondents in the 1984 study.

1974 Results

The results of the 1974 study were reported by Pratt (1977). Of the 100 graduates, 93 were contacted, 69 of whom (74 per cent) were currently teaching. Relationships between predictor variables and survival in teaching were nonsignificant, with two exceptions.

1. 95 per cent of 4-year degree graduates had survived into their fourth year of teaching, compared with only 76 per cent of 3-year graduates (difference significant at .05).

2. All of the permanent drop-outs had interview scores below the average for the total sample (difference significant at .001).

1984 Results

Approximately half the questionnaires were returned by mail. Assiduous detective work by telephone on the part of a graduate research assistant brought the total returns to 84, plus 2 which were returned anonymously and could not be used for most of the analysis. One graduate had died. Of the 86 graduates who replied, 64 (74.4 per cent) were still teaching. This represents a remarkably low average attrition of approximately 2 per cent per annum; however, most of the attrition clearly occurred in the first four years. The average graduate had taught 9.9 years. Of the 64 still teaching, 18 had been promoted to positions of administrative responsibility, including 1 principal, 4 vice-principals, and 9 department heads. Analysis of the data is shown in Tables 2-6.

Few of the relationships are significant. Males are more likely to survive in teaching, and if they survive, about twice as likely to be promoted. There is a tendency for teachers who are promoted to have higher grades in their curriculum courses and in student teaching.

An additional variable was introduced during analysis of the data. We noticed that nine of the original sample had been admitted to the program without a preadmission interview. The reasons for this are now obscured by the mists of time. None of these nine graduates had subsequently been promoted, compared with 24 per cent of those who had been interviewed (χ^2 significant at .10). Five of the non-interviewed graduates dropped out of teaching (56 per cent), compared with 24 per cent of those who were interviewed (χ^2 significant at .05). While it would be rash to generalize from this small sample, it may be that early application and attendance at an

interview are indications of commitment to teaching.

Discussion

This study has examined predictors of survival and promotion in the teaching profession. It has not directly examined any criterion of teacher effectiveness or acceptability. The predictors examined were, moreover, attenuated by the admissions requirements for minimum scores in terms of undergraduate average and interview score.

It is unsurprising that no robust predictors were found which operated over a 13-year span. As Robert Sears, director of the Terman study, points out, "a variable's predictive value diminishes with time" (Goleman, 1980, p. 47). The survival (and probably the effectiveness) of professionals will depend to an increasing extent as time passes on contextual factors--the quality of institutions in which they work; the expectations of superiors, colleagues, and clients; further training they undertake; life-choices and life-chances. As these factors become more significant, pre-training and in-training factors will become relatively less predictive.

The absence of stable predictors of career success in teaching discredits some of the rhetoric surrounding admissions to teacher education. Given that retention and promotion are at present not readily predictable, admissions policies need to be based on a firmly argued rationale which is philosophical rather than empirical. Ultimately, such a rationale rests on value priorities. One school of educators will continue to prefer candidates with high academic scores. Another school would prefer teachers who are loving and responsive. This study supplies empirical support for neither side. That leaves the issue in the realm of values, where it almost certainly belongs.

Table 1

Characteristics of Subjects

		Mean	Range	SD
Year of birth		1946	1914-1950	4.7
Undergraduate average		69.3	56.0-82.8	5.1
Interview score		5.0	3.3-6.0	0.7
Curriculum grade		77.1	32.5-88.0	7.7
Practice teaching grade		4.7	3.3-5.7	0.5
Years taught		9.9	0 - 13	4.2
		N		N
Sex	Male	39	Female	45
Mar. status on admission	Married	29	Single	55
Degree	3-year	37	4-year	47
Survival	Survived	64	Dropped out	22
Promotion	Promoted	18	Not promoted	48

Table 2

Correlations Between Variables										
	1	2	3	4	5	6	7	8	9	10
1. Sex (1 = male)										
2. Married (1 = single)	.021									
3. Age	-.123	.294**								
4. Undergrad. average	.305**	.092	-.007							
5. 3 or 4 yr degree	-.164	.186	-.013	.112						
6. Interview score	-.026	.235*	.075	.029	.224*					
7. Curriculum grade	.172	.078	-.278**	.342**	-.083	.175				
8. Prac.teaching grade	.178	.073	-.088	.155	-.125	.203	.422**			
9. Survival	-.250*	-.025	-.033	-.166	.154	.161	-.074	-.024		
10. Years taught	-.185	-.023	-.044	-.131	.166	.171	-.045	.006	.923**	
11. Promotion	-.091	-.081	-.127	.055	.006	.064	.283*	.317*	.000	-.121

*Significant to .05

**Significant to .01

Table 3

Survivors and Dropouts: Continuous Variables

	Survivors		Dropouts		T	Signif- icance
	$\bar{X}$	SD	$\bar{X}$	SD		
Year of birth	1946.7	3.0	1947.0	3.1	.04	NS
Undergraduate average	68.1	4.6	66.9	5.0	.32	NS
Interview score	5.2	0.7	4.8	0.8	.26	NS
Curriculum grade	76.9	5.9	77.3	6.2	.04	NS
Practice teaching grade	4.7	0.5	4.7	0.6	.03	NS

Table 4

Survivors and Dropouts: Dichotomous Variables

Characteristic	Survived	Dropped out	χ^2	Significance
Male	33	6	4.44	.05
Female	28	17		
Married	22	7	.08	NS
Single	39	16		
3-year degree	23	14	1.97	NS
4-year degree	38	9		

Table 5

Promoted and Nonpromoted Survivors: Continuous Variables

	Promoted		Nonpromoted		T	Significance
	$\bar{X}$	SD	$\bar{X}$	SD		
Year of birth	1947.3	1.2	1946.4	3.5	.350	NS
Undergraduate average	68.6	4.3	68.0	4.6	.100	NS
Interview score	5.2	0.7	5.2	0.7	.000	NS
Curriculum grade	79.8	4.4	75.6	6.6	.400	NS
Practice teaching grade	4.9	0.5	4.6	0.4	.532	NS

Table 6

Promoted and Nonpromoted Survivors: Dichotomous Variables

Characteristic	Promoted	Nonpromoted	χ^2	Significance
Male	11	28	4.51	.05
Female	7	38		
Married	4	25	0.11	NS
Single	14	41		
3-year degree	7	30	0.02	NS
4-year degree	11	36		

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